JLCA Corner

The Progress of Inventory Study Committee WG2 in the National LCA Project in Japan

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The National LCA Project in Japan started in October last year. The investigations of this project are progressed mainly by 3 committees (Inventory, Database and Impact Assessment). We are aware of the difficulty of correcting data concerned with the disposal of products due to their complexity and the lack of information. For this reason, the inventory committee is divided into 2 working groups. One of them, WG2, has been established to develop the methodology for an estimation of the disposal phase and to prepare the representative inventory table. This article introduces the progress of Inventory Committee WG2 based on the paper by Dr. Halada, chairperson of WG2.

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During the last year, the main tasks of this working group have concentrated on the following:
1. Establishment of LCI methodology related disposal phase.
2. Correction of the basic information concerning the disposal phase
3. Determination of the future work

(1) Establishment of LCI methodology related disposal phase
This is one of the main tasks of our working group. In this discussion, we focused on a clarification of the problem-related disposal phase from the point of view of establishing the methodology as a first step.
First of all, we characterized the problems of inventory data concerning the disposal stage from the viewpoint of a product supplier. Information concerning the treatment by a local autonomous entity, however, is difficult to collect for manufacturers. This is because a lot of types of waste come together in recycle stations and not only the objective products for LCA. It is difficult to allocate the environmental burden of the objective products from the factory data. Consequently, we put an emphasis on collecting such type of information to improve the reliability.
Furthermore, we discussed several methodologies of LCI in the disposal stage. In this year, we investigated the allocation procedure for recycled products and analyzed the process in the disposal stage in order to identify the primary factors for estimating inventory data. The emission in the disposal and waste stage is composed mainly 'originated from the components of products' like CO_2 and 'originated from the type of disposal processes' like thermal NOx and dioxins. We shall distinguish these differences in the model for estimating the inventory.
Other than these problems, there are a lot of problems which we should consider in order to construct the reliable methodologies.

(2) Collection of the basic information concerning the disposal phases
To construct a model for LCI, we must collect a lot of background data like the composition of emitted gas by incineration and the recycle rate of products.
We investigated the material flows concerning disposal stages to survey the present situations and correct the basic data related to the processes of the treatment stage in order to apply them to the model for LCI in disposal.
To sum up the major characteristics of these investigations, we can note the following.
A) We made material flows related to materials (steel, aluminum, copper, zinc, lead, platinum, tin, chromium, nickel, and glass) in a common approach.
B) We investigated the several local autonomous entities and acquired the basic data concerned with several disposal processes like the composition of waste water and emitted gas from the factories.

(3) Determination of the future work
Furthermore, other than the issues noted above, we can introduce these following problems to promote the establishment of inventory data in the disposal stage.
A) Inventory data will be aggregated in accordance with human activities. If we consider a disposal process like a shredder in LCA (case A), we will add the environmental burden for the operation of these plants. However, if we abandon the used products without any treatment (case B), we may not involve the environmental burden after abandonment, because there is very little data. This means it is quite a disadvantage for case A, although efforts to reduce the potential of environmental burden are observed in this case. We strongly hope to make a model of estimating the inventory table for case B.
B) The problem of how to estimate the recycle rate is still open. Currently, the recycle rate is apt to be calculated from the waste in the processing of material, and not the superannuated waste of products. Aluminum, for instance, is widely considered to be a recyclable material. However, the rate of recovered aluminum alloy used in cars was less than 30%. It is quite important to distinguish the rate from material processing and from used products.

From the results of last year, WG2 will investigate these following subjects during this year,
1. An identification of terminology related to disposal stages
2. A trial for the establishment of a model which estimates the inventory data for the treatment of waste
3. The clarification of the structure of inventory data in the disposal stage
4. An investigation of how to treat a case through the abandonment of products
5. An investigation of the way of thinking about the recycling rate